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WP-2 Urban Environmental Policy Options

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INTRODUCTION

At the Federation of Canadian Municipalities' National Board of Directors meeting in Happy-Valley Goose Bay in September 1990, it was agreed that their Standing Committee on Environmental Issues would host a workshop at the FCM Board meeting in December 1990. The purpose of the workshop was to develop a policy statement on the environment.

In November of 1990 the FCM contracted the Canadian Urban Institute to prepare a brief discussion paper for their December workshop. The *Environmental Policy Options* paper was written from the municipal government perspective and with the purpose of providing a structure and focus for discussions.

Environmental Policy Options begins with a section on the Continuum of Policy Positions. This continuum presents a generic range of potential policy positions within which specific positions would likely fit. The continuum was presented to serve as a reminder of the range of options, though the *Environmental Policy Options* paper did not necessarily present an option within each category of the continuum for each issue area considered.

The paper then reviews environmental issues under three main headings: Waste Management, Sewer and Water, and Air. Each section begins with a brief general problem summary and is followed by sub headings for specific issues after each of which are presented policy positions in the form of recommendations. **These recommendations were presented as a focus for discussions only and do not necessarily represent the policies of the Federation of Canadian Municipalities or the Canadian Urban Institute.**

The major environmental issue areas sections are followed by a brief discussion of guiding principles, and municipal environmental policy statements and environmental audits.

CONTINUUM OF POLICY POSITIONS

Listed below is a general range or continuum of statements of policy positions that are available in the expression of municipal policy on a subject area. The policy options presented throughout this paper fit into the categories on the contiuum.

When considering a policy issue the first question to be asked is:

Should the issue appear in the policy statement?

If the answer is no, then the issue no longer needs to be considered. A no answer does not necessarily mean that the subject matter is unimportant. It may be that the issue is being adequately addressed by the appropriate order of government and so it is not considered necessary to address the issue in the FCM policy statement.

If the answer is yes, then the position that is established will fit into a statement on the policy continuum. The contiuum statements reflect the strength of municipal action needed to address the issue.

1. **Obey the Law.** On this issue the responsibility of municipalities is just to obey the law.

2. **Set a Good Example.** On this issues municipalities should operate strictly within their own jurisdiction but should set an example by going further than the law requires in the direction of what is generally recognized as environmentally responsible. Examples include undertaking environmental audits of municipal operations, using recylced paper, minimizing energy use in municipal buildings and vehicles.

3. **Adocate and Legislate.** On this issue municipalities should undertake actions as outlined in position #2 and should, in areas of clear municipal jurisdiction, advocate AND legislate environmentally responsible behaviour to all sectors. Examples include providing information promoting reduction, resue and recycling of solid waste and banning recyclable materials at municipally controlled landfill sites.

4. **Advocate Beyond Municipal Jurisdiction.** In addition to the actions noted in #2 & 3, municipalities should engage in strong advocacy in environmental matters including those that are outside of their formal jurisdiction. An example would be lobbying for increases in national rail service.

5. **Legislate Beyond Municipal Jurisdiction.** On this issue municipalities should, in addition to actions listed under #2, 3 and 4, take highly interventionist actions including setting policies in those areas where they do not have clear authority. An example of this type of action is the City of Toronto CFC By-law.

WASTE MANAGEMENT

Problem Summary

Canadians are on average the most wasteful people in the world. According to a survey performed for Environment Canada, Canadians produce an average of 1.7 kilograms of garbage per person per day, or 16 million tons per year. This is double the amount of garbage produced by the average Swede and triple that produced by the average person in China.[1]

The 1.7 kilograms per person includes only residential, commercial and light industrial solid waste. If heavy industrial waste is added the figure escalates from 16 million tons per year to a total estimated to be between 35 million and 40 million tonnes per year. This figure does not include mine tailings and pulp waste.[2]

The 16 million tonnes per year is generally labelled as municipal solid waste since municipalities provide collection and disposal facilities to handle this waste. The FCM survey of solid waste management in Canadian municipalities indicates that the dominant municipal waste management methods are landfill, recycling and incineration.[3] Information on capacity remaining at existing landfill sites indicates that, on the average, it is rapidly becoming exhausted all across the country. Unless new sites come on line, 71% of the landfill capacity will have been exhausted by about 1995.[4] Leachate management is relatively rare, being found in only 22% of the 103 municipalities that responded to that portion of the survey.[5] With the exception of one emission controlled incinerator in each of the Atlantic and Pacific regions, the only regions with incinerator emission control of any type were Quebec and Ontario.[6]

Municipalities across the country are involved in waste management planning processes. These plans are generally being developed by consultants and municipal staff in consultation with provincial ministries and the public.[7] Frequently these plans involve the need to site a landfill or incinerator and the consultation/approval process provides the opportunity for strong local opposition to be voiced. Municipal waste management planning options under consideration, other than landfill and incineration, place the most emphasis on recycling, including both household and commercial/industrial solid wastes.[8] A policy of following a hierarchy of reduction, reuse, recycling and recovery, in that order, is not generally in effect in Canadian municipalities.[9]

Municipalities engaged in recycling programs have found that even successful and aggressive programs can only divert a relatively small proportion of the total waste stream, perhaps 12%.[10] The chief difficulty for municipalities engaged in recycling programs is that they have very little control over revenues for recyclable materials. The current markets for recyclable materials are characterized by the purchasers being generally very few and large, and they are operating in a cyclical market. This leaves municipalities in the unenviable position of being relatively small players in the market, holding (what is for them at least) a large supply of materials for which there are few purchasers. Municipally collected recyclables compete in the marketplace with large and long established suppliers of raw materials that often have long-term contracts with their purchasers. There is generally no requirement that industries either take responsibility for the long term costs of recycling their products, or that they provide markets for recyclables.[11]

The Hierarchy of Waste Management Solutions

Most municipalities have some authority for the collection and/or disposal of solid waste. However waste disposal is not only becoming problematic because of the difficulties municipalities are having in locating new landfill and incinerator sites, disposal is also now widely recognized as the least preferred alternative for dealing with the environmental issue of solid waste. This preference is strongly reinforced by the Not in My Back Yard reaction to citing proposals for landfills and incinerators.

The Canadian Council of Ministers of the Environment have agreed to a goal of watse diversion from landfill and incineration of 25% by 1992 and 50% by the year 2000. The FCM has endorsed this goal and is participating in developing a national packaging protocol aimed at meeting these targets for the packaging industry.

Recommendation

i *That all governments adopt a hierarchy of waste management practices of reduction, reuse, recycling and recovery, in that order, and prioritize the promotion and funding of their waste management programs accordingly.*[12]

ii *That all governments set waste diversion targets of 25% by the year 1992 and 50% by 2000 that will be met via the hierarchy of reduction, reuse, recycling and recovery.*

Setting the Example: Waste Audits and Procurement Policies[13]

No government should expect private enterprise or the public generally to give serious regard to waste management regulations or programs unless that government is also seen to actively undertake reduction, reuse, recycling and recovery activities within its own operations.

A waste audit can be performed on its own or as part of a general environmental audit. A waste audit is an analysis of a government or business operations process aimed at minimizing or eliminating waste. For government operations, activities reviewed may include use of paper products, food services, building operation and maintenance, transportation and ground maintenance.

Governments in Canada are major consumers of a large number of goods and services. There is potential to use this purchasing capacity to both influence reduction, reuse, recycling and recovery activities via the marketplace, and again to set the example. A procurement policy can take the form of a formal directive that outlines the types of products and prices at which they may be purchased, or the policy may be as simple as using the purchasing opportunity to inquire of suppliers whether or not they have conducted a waste audit of their operations.

Recommendations

i *That all orders of government undertake waste audits of their own operations.*

ii *That once a municipality has completed its own waste audit, it makes inquiries of provincial and federal government offices and other operations within its borders as to whether they have conducted a waste audit. If they have not conducted waste audits, the municipality should request that they do so and offer assistance if possible.*

iii *That all orders of government establish procurement policies that will favour purchasing products and services that reflect waste reduction, reuse, recycling and recovery activities.*

Reduction and Reuse[14]

Waste reduction can be thought of as both the general concept of diversion from landfill, and the more specific methodologies involved in reducing waste at the stages of production where it is created. This section refers to reduction at the production stage. Waste reduction strategies at the source include strategies in production processes and in final products.

Process strategies include:

(a) product reformulation to eliminate or reduce the production of wastes;

(b) substitution of low hazard products for toxic products;

(c) plant modernization to increase product efficiency;

(d) redesigning industrial processes to minimize waste and preserve resources.

Product strategies include:

(a) increased durability, longevity and reparability of products;

(b) redesign resulting in less waste generation;

(c) packaging to increase the life span of a product and/or reduce or minimize waste in the product or the packaging itself.

Recommendations

i *That municipalities undertake waste reduction programs providing information and advice to alter waste generating behaviour or reduce the amount of waste requiring treatment or disposal.*

ii *That the provincial and federal governments undertake information and funding programs to encourage the reduction of waste.*

iii *That provincial governments establish regulations requiring industries to reduce the wastes created by their products or provide reuse mechanisms for their products.*

iv *That the federal government follow through on its national packaging protocol to reduce packaging waste by 50% by the year 2000.*

Recycling[15]

Under recycling programs materials that would otherwise end up in landfill are removed from the disposal stream, re-processed and used in the manufacture of new items. Municipalities engaged in recycling programs have found that even successful and aggressive programs can only divert a relatively small proportion of the total waste stream, perhaps 12%. The chief difficulty for municipalities engaged in recycling programs is that they have very weak markets for recyclable materials. There is generally no requirement that industries either take responsibility for the long term costs of recycling their products, or that they provide markets for recyclables.

Recommendations

i *That recycling programs be funded on a cost shared basis between municipalities, the provincial governments and industries.*
OR

That recycling programs be funded entirely by the industries whose products are collected via the program.

ii *That recycling performance standards be developed and applied to all products not amenable to reduction and reuse.*

iii *That provincial governments establish secondary material content regulations to ensure that adequate markets exist for recyclable materials.*

Recovery: Composting and Energy from Waste

Composting of organic waste materials represents a potential for significant diversion from landfill. Municipalities in all regions of the country are currently engaged in composting activities, but these activities are mostly limited to centralized programs dealing only with leaves.[16] The major obstacle to expanded composting is the development of cost effective technology for wet/dry garbage collection that can provide uncontaminated compost.

The FCM survey indicates that open burning of garbage is relatively common in the Pacific Region, the Atlantic Region and the Prairies. With the exception of one incinerator in the Atlantic Region, only Ontario, Quebec, and to a smaller extent the Pacific Region, recover energy from incineration and use some form of emission control.[17]

Municipalities do not generally have research and development capabilities for the new technologies associated with composting and energy from waste.

Recommendations

i *That municipal solid waste used as an alternate energy source be considered as part of a total waste management strategy by all orders of government, according to the hierarchy.*

ii *That the federal and provincial governments fund research and development of new composting and energy from waste technologies.*

iii *That Provincial governments establish emission control standards for the burning of waste and provide financial assistance to municipalities to encourage emission controlled incineration as an alternative to open burning.*

iv *That Provincial governments provide funding to municipalities for the establishment of backyard and central composting programs.*

Labelling

Labelling of products and packaging presents an opportunity for consumer action and education. Labels that clearly indicate whether a product or container is returnable, recyclable or household hazardous waste would both aid municipal waste management programs and help make consumers aware of waste options.

Recommendations

i *That the federal and provincial governments cooperate in establishing a labelling program by designing labels that will clearly indicate whether a product or package is recyclable, returnable, compostible, household hazardous waste or not.*

ii *That, although it is not clearly within municipal jurisdiction to do so, municipalities pass by-laws requiring the labelling of products that indicate whether a product is returnable, recyclable, compostible, household hazardous waste or not.*

Waste Disposal and Collection[18]

Municipalities may be able to significantly impact the behaviour of businesses and consumers through programs within their own collection and disposal systems. Banning commercial dumping of recyclable materials (e.g. wood and corrugated cardboard) at landfill sites is already being undertaken in several municipalities. Increases in tipping fees at municipal landfill sites and direct charges for waste collection on a user fee basis are other techniques available to municipalities.

Recommendations

i *That municipalities ban the dumping in municipal landfill sites by commercial haulers of materials that are reusable or recyclable.*

ii *That municipalities establish tipping fees at their landfill sites that will provide revenue during the life of the landfill sites to cover the costs of closure, maintenance and replacement of the site.*

iii *That municipalities establish waste collection user fees.*

SEWER AND WATER

Problem Summary

Two types of sewer systems are employed in Canada, combined and separate. Combined sewers carry both storm and sanitary wastewaters. Separate sewers carry storm and sanitary wastes in separate collectors. In this system stormwater is not generally treated.

National figures for 1981 indicate that public sewage collection systems service 17.9 million Canadians; 65% of these people reside in municipalities that are totally or in part serviced by separate collectors. Figures on populations served by sewage treatment plants indicate that wastewater from 35% of these 17.9 million (or 6.3 million) Canadians is not being treated.[19]

Approximately 6 million Canadians are on private water systems or on distribution systems being served by raw water. Municipalities with populations of 30,000 or less account for the majority of these situations. It is estimated that 3 million Canadians have private wastewater treatment such as septic tanks and tile fields.[20] Environment Canada estimates that water consumption increased by 54 per cent between 1972 and 1981, while the population of Canada increased by only about five per cent.[21]

Most heavily populated municipalities have a central wastewater treatment facility. The operation of these plants is usually a municipal function regulated by provincial guidelines, which are designed to limit the concentration of pollutants in the effluent discharged to bodies of water. Originally treatment processes were designed to remove heavier solids and disinfect remaining wastewater. Controls on materials entering wastewater treatment plants have been developed to deal with explosives, corrosives and heavy metals. Recently persistent toxic organic compounds have become a major problem. Even those that are removed in wastewater treatment plants end up in the sludge, where they can transfer to the air, soil or water. Tertiary treatment, which can absorb many chemical contaminants, is fairly expensive and has yet to be used on a wide scale in Canada.[22]

The FCM infrastructure review indicates that during this period of rapid growth in water and chemical use, many Canadian municipalities have sewers and wastewater treatment systems that are not only not keeping up with growth, but are deteriorating. For municipalities with storm and sewage in the same pipe, overflow and untreated discharges during heavy rainfall are becoming more commonplace.[23]

Current threats to drinking water supplies are the results of both inadequate discharge treatment and control, and deteriorating water treatment and delivery systems. Chemical contamination of water supplies from industrial discharges, urban runoff or leaking landfills is not addressed by chlorination, which is the usual water treatment process. Government control of drinking water quality is almost non-existent in Canada.[24]

Delivery of appropriately treated drinking water can itself be a problem where water lines are old and in poor condition. Old leaking water lines are subject to infiltration of contaminants from surrounding soils and groundwater. Corroded water mains become lined with sediments which lead to bacteria growth that is difficult to control, even with chlorination.[25]

Policy Options

Controlling Industrial Discharges at the Source

An Ontario Ministry of the Environment survey in 1984 found that there were approximately 270 different chemical pollutants flowing through municipal plants into waterways, not including metals, PCBs or Pesticides. None of the plants were capable of monitoring or treating hazardous organic toxins such as dioxins, PCBs and chlorinated benzenes.[26]

Controlling discharges at the source means dealing with them before they enter the sewers or are directly released into waterways. Methods for control at the source include manufacturing process changes, substitution of raw materials, recycling of waste by-products and treatment prior to discharge.[27]

Few municipalities have sewer use by-laws that limit the concentrations of chemicals that industries are allowed to discharge into sewers. Due to limited municipal resources, these by- laws usually cannot deal with the full variety of toxic chemical industrial discharges.[28]

Recommendations

That municipalities establish sewer use by-laws restricting chemical discharges into sewers.

That provincial/territorial governments establish and enforce legislation controlling industrial discharges (both to sewers and directly to waterways) at the source, using the best available technology that is economically achievable.

That the federal government negotiate common industrial discharge standards among the provinces to avoid provincial competition for industry location based on lower discharge standards.

That costs of enforcing discharge controls be obtained from the industrial dischargers that the controls are targeted at.

Household Wastewater

Household wastewaters can also contain toxic substances found in commonly used household products that are disposed of via the drain. These include paint, solvents, glues, pesticides, oil etc.[29] Some municipalities in Canada have been conducting household hazardous waste days. On these days the municipality establishes special receiving depots and the public is invited to bring their household hazardous wastes that may otherwise be poured down the drain or sent to landfill sites.

The experience of municipalities has been that these events are popular with the public, but that most of the material they receive is paint. These events are also very expensive to conduct.[30]

Recommendations

i *That provincial governments establish legislation requiring manufacturers and distributors of household hazardous products that end up in wastewater systems, to provide facilities for consumers to return excess quantities of those products.*

ii *That municipalities operate household hazardous waste collection systems, and that provincial governments require manufacturers and importers of products collected to fund those systems.*

iii *That the federal and provincial governments cooperate in establishing a labelling program by designing labels that will inform consumers that products are hazardous and should not be poured into municipal sewers.*

iv *That although it may be beyond their jurisdiction, municipalities pass by-laws requiring the labelling of products to inform consumers that products are hazardous and should not be poured into municipal sewers.*

v *That all orders of government establish public information and education programs informing consumers of appropriate ways of handling household hazardous wastes.*

Water Quality

As noted above, the drinking water chlorination process does not address chemical contamination. In addition bottled waters are not generally subject to regulation. Quebec is the only province that has enforceable water quality regulations.

Recommendations

i *That provincial governments establish enforceable water quality regulations.*

ii *That the federal government establish national water quality regulations.*

iii *That all water quality regulations established be developed through consultation with municipalities, and be based on sound scientific rationale with resulting regulations that are meaningful, realistic and practical.*

Runoff

Toxic substances in runoff include lead from vehicle exhaust, fallout from industrial and vehicle fumes, paint, solvents, oil, asbestos and road salt. In separated sewer systems runoff is usually released untreated directly to the waterway. In combined systems the runoff enters the sanitary system and is treated along with sewage. The combined system is environmentally preferable. However, combined systems experience problems during periods of heavy rainfall. Since most wastewater treatment plants do not have sufficient capacity to handle this volume, the overflow is released without adequate treatment.[31]

Recommendations

i *That all Canadian stormwater sewers that do not treat stormwater be upgraded to treat stormwater in wastewater treatment plants.*

ii *That combined systems experiencing capacity overflows be upgraded through increased capacity or the building of retention areas for stormwater.*

Infrastructure Funding

As noted by Wallace Associates, "With the exception of at-source control of toxic chemicals, the primary wastewater treatment problem is financial and political, not technological."[32] Since 1983 FCM has been actively addressing the issues of the deterioration of municipal infrastructure in Canada and the potential funding sources to rectify the situation. FCM has developed strategies to gain funding commitments from all orders of government to share equally in the costs of upgrading infrastructure.

A Science Council of Canada report supports FCM arguments that infrastructure investment is not only necessary to provide a clean environment and support economic activity, the report also points out the economic benefits of developing clean water technologies in Canada. As noted in the report:

> - Only 55 per cent of the Canadian water resources market is satisfied by Canadian equipment and this marketshare is declining.
>
> - Canadian industry spends almost $100 million annually on water pollution control equipment.
>
> - In the next five years, capital expenditures required by municipalities and industries to meet wastewater standards could create between 75,000 and 170,000 jobs in Canada.[33]

FCM recognizes the necessity for municipalities to provide one-third of the funds necessary to solve the infrastructure problem. Yet apparently some municipalities not making these funding commitments.[34]

Municipal water rates present a possible source of funds to invest in sewer and water infrastructure. In addition water conservation policies, whether through higher water rates or education programs, may have an impact on lessening the stress on wastewater treatment systems, since water pumped for residential, commercial or industrial use becomes wastewater that has to be treated at the sewage treatment plant.

According to the Royal Commission on the Future of the Toronto Waterfront,[35]

Most residents of the GTA [Greater Toronto Area] pay a flat yearly rate for water, and only 30 per cent of houses in the area have water meters.

...Deputants made the case that comprehensive municipal water conservation strategies (including realistic pricing per litre for users) would induce a decline of as much as 20 per cent or more. In turn, that would mean lower levels of wastewater production and better control of effluents (thereby reducing the pollution from STPs [sewage treatment plants].

Recommendations

i *That municipalities increase water use fees to reflect a true cost of service and to provide revenues for upgrading water and wastewater infrastructures.*

ii *That municipalities use water meters instead of flat rates and that tenants in apartment buildings be informed of their contribution to water charges as paid in their rents.*

iii *That all orders of government undertake water conservation policies within their own operations.*

iv *That all orders of government undertake public awareness programs designed to improve water conservation behaviour.*

v *That the FCM continue its Municipal Infrastructure Program Strategies as adopted at the 1990 Annual Conference.*

Problem Summary

Next to thermonuclear war, the most significant threat to the world's environment is global warming.[36] Global warming is a result of human activities that release certain chemicals into the atmosphere. The major chemicals contributing to global warming are carbon dioxide, nitrogen oxide, methane and chlorofluorocarbons (CFCs). Simply put, the accumulation of these chemicals in the atmosphere increases the retention of heat on the planet. The conclusion of the world's leading experts at the World Climate Conference in Geneva this November was that global temperatures are rising as a result of human activities that emit these gasses into the atmosphere. The increase of the average global temperature has been perhaps 0.6 degrees Celsius this century, and the rate of increase is accelerating.[37] Present trends of increasing fossil fuel use may cause a temperature increases of 1.0 degree Celsius in the next few decades[38], and a 3.5 degree increase over the next century.[39] The precise effects of global warming are unknown, but the earth has not been 1 degree warmer than it is today since before the dawn of civilization.[40] In a sense we are conducting an unprecedented experiment with our planet and expert consensus seems to be that such temperature increases will cause catastrophic climate and ecosystem changes over the whole planet.[41]

The expert prescriptions for exactly what needs to be done, and in what timeframe to prevent disaster vary somewhat, but all recommendations call for a significant decrease in greenhouse gas emissions from today's levels. The current trend is that emissions are actually increasing. In 1988 at a conference in Toronto called "The Changing Atmosphere: Implications for Global Security" targets were established calling for the elimination of CFCs and halons by the year 2000, and a 20% reduction in carbon emission levels by the year 2005 (although the conference recognized the need for a 50 per cent cut just to stabilize atmospheric carbon dioxide).[42] A study by British scientists, commissioned by Greenpeace, recommended eliminating CFC production by 1995, halting net deforestation by 2000, and cutting carbon dioxide emissions by 30% from their present levels by the year 2020.[43] The International Panel on Climate Change suggests that carbon dioxide, nitrous oxide and CFCs have to be cut by 60% just to stabilize atmospheric concentrations at today's levels.[44]

While the precise numbers may be debated, the overwhelming expert opinion is clear that dramatic steps to reduce total emissions of greenhouse gases are urgently needed if we are to avoid climatic disasters starting early in the next century.

Canada has 0.4 per cent of the world's population and produces 2 per cent of all greenhouse gases. The federal government has not agreed to set a target for a national reduction of carbon dioxide emissions.[45] The federal Ministry of the Environment's Greenplan indicates that "Canada insists on a worldwide investigation into the feasibility of such targets."[46]

The other significant impact of air pollution relates directly to human health in the short term. As noted by the Urban Transit Association,

Recent studies show that chronic exposure to urban levels of air pollution affects health and life expectancy, and increases the incidence of cancer, chronic respiratory diseases and upper respiratory infections. Urban levels of air pollution also impact on employee performance and absenteeism. Carbon monoxide induces headaches, loss of visual acuity and decreases motor coordination. The photochemical smog produced in part by high concentrations of hydrocarbons and nitrous oxides from automobiles also causes damage to crops, trees and property.[47]

Policy Options

Emission Reduction Targets

The Government of Canada has proposed the elimination of Canadian production and importation of CFC's and halons by 1997. The Government of Canada has also proposed to establish California emission standards for cars by 1994. As noted above, the Government of Canada has not committed itself to a policy of a total reduction of greenhouse gas emissions. The problem however does not appear to be adequately addressed by setting standards like these since there continues to be growth in total emissions. As stated by the executive officer of the California Air resources Board, "All the progress we are making through [clean air] technology is being eaten up by growth".[48] There is a need for comprehensive approaches to air pollution problems.

Recommendation

i *That all orders of government in Canada establish a policy target of a 50% reduction of greenhouse gas emissions by the year 2005. [Based on determination of the reduction needed to stabilize atmospheric carbon dioxide at the Toronto Conference "The Changing Atmosphere: Implications for Global Warming"]*

Transportation Related Policies

Transportation vehicles are the most significant sources of carbon monoxide, lead and hydrocarbon emissions into the air. Vehicle emissions also account for about 1/2 of all nitrous oxide pollution.[49] Increases in the number of vehicles and their miles travelled will more than offset the benefits of tougher emission standards. Numerous studies demonstrate clear and substantive reductions in emissions when public transit is substituted for private automobiles in urban and inter-city travel.[50] Yet current government policies in Canada generally favour private cars over public transit. This is evident in the VIA Rail cutbacks and automobile dependant planning for suburban sprawl.[51]

Recommendations[52]

[These recommendations do not include the numerous recommendations regarding the federal government role in promoting rail transportation as listed in FCM's "Municipalities and the National Transportation Network" as adopted at the 1990 FCM annual conference, and the FCM Brief to the Royal Commission on National Passenger Transportation as presented on November 15, 1990]

i *That the role of public transit be emphasized in the goals and objectives of the Federal/Provincial Long Range Transportation of Air Pollutants Steering Committee.*

ii *That the federal and provincial governments promote the increased use of public transit via tax measures such as credits for the purchase of tranist passes, and credits to employers and developers who help underwrite the cost of transit service links to their place of business.*

iii *That the federal government provide funding assistance for the construction of rapid transit services.*

iv *That taxes on fossil fuel use be increased with the revenues derived being invested in public transit, and research and development of alternate fuels.*

v *That provincial governments adopt pro-transit transportation policies (i.e. less reliance on automobiles; high occupancy vehicle lanes for use by busses, car pools and vanpools on provincial highways etc.)*

vi *That provincial governments establish policies promoting urban intensification and discouraging urban sprawl including planning guidelines requiring the inclusion of transit goals and objectives in municipal official plans, and promoting integrated inter- municipal transit services.*

vii *That municipalities adopt pro-transit goals and objectives in their official plans, secondary and site planning documents, and adopt pro-transit policies such as density bonusing for contributions to transit infrastructure, reduced parking rates for transit riders and increased parking rates for non-transit riders.*

viii *That all orders of government establish information and education campaigns that promote public transit as part of the solution to global warming and local air pollution.*

ix *That federal policies proposing changes in passenger rail service be subject to environmental assessment considerations.*

Energy Efficiency and Conservation

The World Commission on Environment and Development noted that improving energy efficiency is the quickest, most cost effective way of reducing carbon emissions and other gasses that are altering the atmosphere.[53] Eighty per cent of Canada's energy comes from the burning of fossil fuels.[54] The federal government has budgeted 5.1 billion dollars over the next four years for loans and grants to extract fossil fuel resources. For the same period 160 million dollars have been budgeted to develop alternative energy sources.[55]

Recommendations

i *That all orders of government undertake energy conservation programs in their operations.*

ii *That all provincial governments revise their building codes to require energy efficient performance standards for more energy efficient buildings.*

iii *That the federal and provincial governments aggressively develop alternative environmentally benign energy sources through greater investment in research and development.*

iv *That all orders of government undertake information and education campaigns to encourage the public to conserve energy.*

CFCs and Halons

The federal government has proposed the elimination of CFC's by 1997.[56] The use and disposal of existing CFCs and halons are still matters of concern that can potentially be addressed by all orders of government.

Recommendations

i *That the federal and provincial governments establish programs and regulations to ensure that reclamation and recycling of drainable CFCs and halons prior to disposal be made mandatory.*

ii *That all orders of government discontinue the use of products which require the use of CFCs in manufacturing or operation.*

iii *That municipalities pass by-laws controlling the emission of CFCs and halons during the servicing and disposal of commercial refrigerators and air conditioners.*

Stationary Pollution Sources

Industrial smokestacks, power generating stations etc. are also significant emitters of a wide variety of air pollutants. As with industrial water pollution, these types of air pollution must be controlled at the source.

Recommendation

That the federal and provincial governments cooperate in developing nationally consistent air pollution control regulations that require all significant air pollution sources to install appropriate control equipment and meet specific emission limits, and that the level of pollution controls be matched to the hazardousness of the contaminant.

GUIDING PRINCIPLES

Below is listed a selection of general environmental principles. A statement of principles could be made at the beginning of an FCM environmental policy statement. It is also possible to create a set of principles for each section of a policy statement that directly relate to an issue area (i.e. a set of waste management principles). The principles need not be expressed in a policy statement at all but may be used by staff as direction guidelines while preparing the policy statement.

i **Stewardship**. We must preserve the biosphere's capacity to evolve by managing human activities for the benefit of present and future generations.

ii **Shared Responsibility**. All sectors and all individuals are responsible for the environmental effects of their decisions and actions.

iii **Consultation and Cooperation**. Environmental problems can only be successfully resolved by working in a spirit of consultation and cooperation.

iv **Prevention.** The most responsible and effective means of dealing with environmental problems is to anticipate and prevent them.

v **Integration.** Economic and environmental considerations must be integrated in decision making.

vi **Global Effects or Thinking Globally, Acting Locally.** Recognition of cumulative global effects must be given in local decision making.

vii **Government Leadership.** All orders of government must show leadership through setting the example with environmentally benign operations, and investigating and informing the public on environmental issues.

viii **User/Polluter Pay.** To inspire environmental consciousness and economic feasibility of public environmental systems, users of publicly provided environmental systems should pay for such systems on a true cost basis. Manufacturers of products should pay for any publicly provided environmental service that is necessary to deal with the environmental consequences of using their product, so that the true and full environmental cost of their product will be represented in the price of that product.

ix **Quality of Life.** Considerations of the long term quality of life should take precedence over the short term quantity of material goods.

ENVIRONMENTAL POLICY STATEMENTS AND ENVIRONMENTAL AUDITS

Apparently most canadian municipalities do not have environmental policy statements. such policy statements could be simply an expression of environmental principles to be used as guidelines in development of municipal policies.

A municipal environmental policy statement can also be a detailed document used to establish priorities reflected in policies, by-laws and operations. this type of policy statement could be based on the result of an environmental audit of the whole municipality. the results of the environmental audit could be subjected to a cost-benefit analysis of potential policies. this analysis could then be used to establish environmental priorities for the municipality that could be reflected in official plans, economic development plans, by-laws and operational procedures. a spinoff benefit of municipal environmental audits is that if the vast majority of municipalities undertake them, the information obtained will provide a comprehensive and detailed assessment of the canadian environment.

Recommendation

That Municipalities Prepare Environmental Policy Statements That Express Principles That Should Be Considered In Municipal Decision Making.

Or

That Municipalities Undertake Environmental Audits Of The Entire Environment Within Their Borders. That The Results Of These Audits Be Subjected To Cost-Benefit Analysis And A Municipal Environmental Policy Statement Expressing Environmental Priorities Be Established.

ENDNOTES

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[1] As quoted in, Association of Municipalities of Ontario, *Municipal Solid Waste Management: Whose Problem Is It?* (Toronto: Association of Municipalities of Onatario, 1990), p.6. The Association of Municipalities of Ontario will hereafter be referred to in the endnotes as AMO.

[2] Environment Canada figures as quoted by AMO, *Municipal Solid Waste Management: Whose Problem Is It?*, p.6.

[3] Wallace Associates, *FCM Survey Report: Solid Waste Management in Canadian Municipalities*, (Ottawa: Federation of Canadian Municipalities,1990), p.12.

[4] Ibid

[5] Ibid, p. 20.

[6] Ibid, p. 7.

[7] Ibid, p. 12.

[8] Ibid

[9] Ibid, p. 10.

[10] AMO *The Municipal Waste Abatement Strategy* (Toronto: AMO 1989), p. 25-26.

[11] Ibid.

[12] Adapted from AMO, *The Municipal Waste Abatement Strategy* (Toronto: AMO, 1989), p. 10.

[13] This section adapted from AMO, *Municipal Waste Abatement Strategy*, p. 12-13.

[14] This section adapted from AMO, Municipal Waste Abatement Strategy, p. 14-23.

[15] This section adapted from AMO, *Municipal Waste Abatement Strategy*, p.23-27.

[16] Wallace Associates, *Solid Waste Management in Canadian Municipalities*, p. 6.

[17] Ibid, p. 6-7.

[18] This section adapted from AMO, *Municipal Waste Abatement Strategy*, p. 32-33.

[19] Data in this paragraph is the most recent available and is from, Ministry of Supply and Services Canada, *National Inventory of Municipal Waterworks and Wastewater Systems in Canada 1986* (Ottawa, 1987), p.10

[20] Ibid, p. 6.

[21] As quoted in The Royal Commission on the Future of the Toronto Waterfront, *Watershed* (Toronto, 1990), p.96.

[22] Information in this paragraph from Wallace Associates, *Environmental Concerns for Canadian Municipalities, A Discussion Document Prepared for the Federation of Canadian Municipalities* (Cameron Ontario: Wallace Associates 1989), p.25-26.

[23] FCM Technical Committee, *Impact of Infrastructure on the Environment, Public Health and Safety* (Ottawa: Federation of Canadian Municipalities, 1990), p.1.

[24] "The federal government and some provincial governments issue guidelines for some water quality parameters, but not nearly enough to deal effectively with most of the potentially toxic chemicals that can be found in drinking water supplies. Quebec is the only province at present that has enforceable water quality regulations." Wallace Associates, *Environmental Concerns for Canadian Municipalities*, p. 29.

[25] FCM Technical Committee, *Impact of Infrastructure on the Environment*, p. 2-3.

[26] Ontario Ministry of the Environment, *A Survey and Evaluation of Organic Compounds in Nine Sewage Treatement Plant Effluents in Southern Ontario* (Toronto: 1984), as quoted in AMO Report 86-14, *Response to the Provincial Government's White Paper Municipal Industrial Strategy for Abatement (MISA)* (Toronto: 1986), p. 4.

[27] AMO Report 88-11, *AMO Position on Controlling Industrial Discharges to Sewers* (Toronto: 1988), p. 3.

[28] Wallace Associates, *Environmental Concerns for Canadian Municipalities*, p. 26-27.

[29] Ibid.

[30] From interviews with municipal staffs.

[31] Wallace Associates, *Environmental Concerns for Canadian Municipalities*, p. 28.

[32] Ibid, p. 29.

[33] Science Council of Canada, *Report 40, Water 2020: Sustainable Use for Water in the 21st Century* (Ottawa: 1988), p. 22.

[34] From interviews with FCM staff.

[35] Royal Commission on the Toronto Waterfront, *Watersheds*, p. 96.

[36] Conclusion of a group of scientists from 46 countries who met in Toronto in June of 1988 at a conference entitiled *The Changing Atmosphere: Implications for Global Security* as quoted in Johnson Lorraine, *Green Future: How to Make a World of Difference* (Markham : Penguin Books, 1990), p.29.

[37]David Suzuki, "Global Warming: Why Canada Must Act", The Star [Toronto], Saturday November 17, 1990.

[38] The Pollution Probe Foundation, *The Canadian Green Consumer Guide*(Toronto: McClelland & Stewart, 1989), p. 18.

[39]Ministry of the Environment, *The Green Plan, A National Challenge* (Hull: 1990), p. 20.

[40] Pollution Probe, *The Canadian Green Consumer Guide*, p. 18.

[41] Ibid.

[42] Johnson Lorraine, *Green Future*, P. 29.

[43] Schaeffer Robert, *Car Sick, Automobiles Ad Nausem* (Greenpeace, 1990), p. 16.

[44] David Suzuki, "Global Warming: Why Canada Must Act" The Star [Toronto], Saturday November 17, 1990.

[45] Ibid.

[46] Ministry of the Environment, *Greenplan*. p. 20.

[47] Transit/Environment Task Force, *The Environmental Benefits of Urban Transit* (Canadian Urban Transit Association 1990), p. 7.

[48] Schaeffer Robert, *Car Sick*, p. 17.

[49] Transit/Environmental Task Force, *The Environmental Benefits of Urban Transit*, p.3.

[50]Ibid p. 4.

[51] Barton Reid, "Planes, Trains & Automobiles" (City Magazine, Summer/Fall 1989), p. 4.

[52] The majority of these recommendations are adapted from th Transit/Environment Task Force, *The Environmental Benefits of Urban Transit*, p. 27-31.

[53] The Global Tomorrow Coalition, *The Global Ecology Handbook* (Boston: Beacon Press 1990), p. 235.

[54] Johnson Lorraine, *Green Future*, p. 144.

[55]Ibid, p. 146.

[56] Canadian Minister of the Environment Press Release, London June 28, 1990.

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